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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/038,673	12/31/2001	Bhashyam Ramesh	10238	9052

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EXAMINER

BETIT, JACOB F

ART UNIT PAPER NUMBER

2164

DATE MAILED: 06/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/038,673

Applicant(s)

RAMESH, BHASHYAM

Examiner

Jacob F. Betit

Art Unit

2164

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-18, 20-31 and 33-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-5, 7-18, 20-31 and 33-43 is/are allowed.
- 6) ☒ Claim(s) 44-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.



SAM RIMELL
PRIMAR: INER

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Remarks

1. In response to communications filed on 07-March-2005, claims 1, 5, 18, 31, 44-45 are amended; claims 48-50 are added; and claims 6, 19, and 32 are canceled per applicant's request. Claims 1-5, 7-18, 20-31, and 33-50 are presently pending in the application.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 48-50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 48-50 each recite the limitation "if the predicted cardinality is less than or equal to a predefined threshold value", followed by a series of steps that would occur if the limitation is found to be true. It is not clear from reading the claim whether the steps following the conditional ever actually happen. The "if" in the limitation should be replaced with language that requires the step to occur at some point in time (i.e. "when the predicted cardinality is less than or equal to a predefined threshold value").

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 44-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Dalal et al. (U.S. patent No. 5,594,898).

As to claim 44, Dalal et al. teaches a data structure stored in a memory for use in performing a join in a database management system executed by a computer, the data structure comprising a Star Map associated with a table referenced in a query, wherein the Star Map includes bitmap entries having locations indexed by a combination of one or more values associated with one or more join key columns of its associated table, where a bitmap entry in the Star Map, if set, indicates the presence of a row in the associated table that has entries in the one or more join key columns that, when combined, identify the location of the bitmap entry (see column 7, lines 11-60).

As to claim 45, Dalal et al. teaches a method for joining a plurality of tables T1 through TN, where each of the tables has an associated Star Map, S1 through SN, respectively, and each Star Map includes bitmap entries having locations indexed by one or more values associated with a join key column of its associated table, where a bitmap entry in a Star Map, if set, indicates the

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presence of a row in its associated table that has an entry in the join key column that identifies the location of the bitmap entry (see column 7, lines 11-60), the method including:

- a) performing a Boolean operation using the bitmap entries of the Star Maps S1 through SN to produce a join Star Map SJ (see column 8, lines 7-14);
- b) using SJ to select rows from the tables T1 through TN (see column 8, lines 14-37); and
- c) joining the resulting rows to produce a join result (see column 8, lines 37-41).

As to claim 46, Dalal et al. teaches where using SJ to select rows from the tables T1 through TN includes for each set bitmap entry in SJ, searching T1 through TN for all rows having values in their respective join key columns that identify the location of the set bitmap entry (see column 7, line 63 through column 8, line 42).

Allowable Subject Matter

6. Claims 1-5, 7-18, 20-31, 33-43 are allowed.
7. Claims 48-50 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Response to Arguments

8. Applicant's arguments filed 7-March-2005 have been fully considered but they are not persuasive.

In response to the applicant's arguments that "Dalal does not teach or suggest a Star Map including bitmap entries, where a bitmap entry, if set, 'indicates a row is present in the associated table that has entries in the one or more join key columns that, when combined, identify the location of the bitmap entry'", the arguments have been fully considered but are not deemed persuasive. The bitmap of Dalal et al. indicates that the tables are eligible for joining. It is inherent that entries that are missing would make the tables unavailable for joining because they wouldn't meet the "restricted field value". Dalal et al. requires not only for the row to be present, but also for it to pass some further restrictions before being eligible for joining.

In response to the applicant's arguments that "Dalal also does not teach or suggest a Star Map which 'includes bitmap entries having locations indexed by one or more values associated with a join key column of its associated table'", the arguments have been fully considered but are not deemed persuasive. Dalal et al. teaches this when he states "[a] bitmap is a data structure that contains one flag, or bit, for each row in its table which indicates whether or not the row is eligible to be joined under the restriction", (see column 7, lines 44-46). When joining tables it is inherent that one column is going to become the "join key column" which is matched up with a column of the second table. The bitmap of Dalal et al. discloses putting restrictions on values that can be joined. It is inherent that the "join key" would have to be available in both tables before these further restrictions would become significant.

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Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob F. Betit whose telephone number is (571) 272-4075. The examiner can normally be reached on Monday through Friday 9 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Rones can be reached on (571) 272-4085. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



**SAM RIMELL
PRIMARY EXAMINER**

jfb
12 Jun 2005